Claims

1. A spacer for holding a number of elongated fuel rods (5) intended to be located in a nuclear plant, wherein
the spacer (30) encloses a number of cells (31), which each has a longitudinal axis (x) and is arranged to receive a fuel rod (5) in such a way that the fuel rod extends in parallel with the longitudinal axis (x), and
each cell (31) is formed by a sleeve-like member (32),
characterised in that substantially each sleeve-like member (32) is manufactured in a sheet-shaped material (60) that is bent to the sleeve-like shape.

2. A spacer according to claim 1, characterised in that the sheet-shaped material (60) before said bending has a first connection portion (61) in the proximity of the a first end of the sheet-shaped material (60) and a second connection portion (62) in the proximity of a second end of the sheet-shaped material (60), wherein the first end overlaps the second end of the sleeve-like member (32) after said bending.

3. A spacer according to claim 2, characterised in that the first connection portion (61) and the second connection portion (62) are permanently connected to each other by means of at least one weld joint.

4. A spacer according to claim 3, characterised in that said weld joint includes a spot weld (63).

5. A spacer a according to any one of the preceding claims the nuclear plant is arranged to permit re-circulation of a coolant flow and wherein the spacer (3) is arranged to be located in the coolant flow, characterised in that the spacer (30) include at least one vane (79) for influencing the coolant flow.

6. A spacer according to claims 2 and 5, characterised in that said vane (70) is formed by a portion (64) of the material, which extends from the first connection portion (61).

7. A spacer according to claims 5 and 6, characterised in that said vane (70) is inclined in relation to the longitudinal axis (x).

8. A spacer according to any one of the preceding claims, characterised in that the sleeve-like member (32) has a thickness of the material, which is less than 0.24 mm.

9. A spacer according to any one of the preceding claims, characterised in that the sleeve-like member (32) has a thickness of the material, which is less than or equal to 0.20 mm.

10. A spacer according to any one of the preceding claims, characterised in that the sleeve-like member (32) has a thickness of the material, which is less than or equal to 0.18 mm.

11. A spacer according to any one of the preceding claims, characterised in that the sleeve-like member (32) has an upper edge (33) and a lower edge (34).

12. A spacer according to any one of the preceding claims, characterised in that the sleeve-like member (32) includes a number of ridges (35), which project inwardly towards the longitudinal axis (x) and extend substantially in parallel with the longitudinal axis (x) for abutment to the fuel rod (5) to be received in the cell (31).

13. A spacer according to claims 11 and 12, characterised in that said ridges (35) extend from the upper edge (33) to the lower edge (34).

14. A spacer according to any one of claims 12 and 13, characterised in that each sleeve-like member (32) includes at least four of said ridges (35).

15. A spacer according to any one of claims 11-14, characterised in that the lower edge (4), seen transversely to the longitudinal axis (x), has a wave-like shape with wave peaks (36) and wave valleys (37) and that the upper edge (33), seen transversely to the longitudinal axis (x), has a wave-like shape with wave peaks (6) and wave valleys (37).

16. A spacer according to claim 15, characterised in that said wave peaks (36) are aligned with a respective one of said ridges (35), wherein said wave valleys (37) are located between two adjacent ones of said ridges (37).

17. A spacer according to claims 15 and 16, characterised in that the sleeve-like members (32) abut each other in the spacer (30) along a connection area extending in parallel to the longitudinal axis (x) between one of said wave valleys (37) of the upper edge (33) and one of said wave valleys (37) of the lower edge (34).

18. A spacer according to claim 15, characterised in that the sleeve-like members (32) are permanently connected to each other by means of weld joints.

19. A spacer according to claims 17 and 18, characterised in that said weld joint includes an edged weld at said connection area at least one of the upper edge (33) and the lower edge (34).

20. A spacer according to any one of the preceding claims, characterised in that the sleeve-like member (32) seen in the direction of the longitudinal axis (x) has four substantially orthogonal long sides (40).

21. A spacer according to claims 12 and 20, characterised in that each long side includes one of said ridges (35).

22. A spacer according to claims 5 and 21, characterised in that said vane (70) extends outwardly form one of said long sides (40).

23. A spacer according to any one of claims 20-22, characterised in that the sleeve-like member (32) seen in the direction of the longitudinal axis (x) has four substantially orthogonal short sides (41), wherein each short side connects two of said of long sides.

24. A spacer according to claim 15 and 23, characterised in that each short side (41) includes with a portion of one of said wave

valleys (37) of the upper edge (33) and a portion of one said wave valleys (37) of the lower edge (34).

25. A fuel unit for a nuclear plant including a number of elongated fuel rods (5) and a number of spacers (30) for holding the fuel rods, wherein
the spacers (30) enclose a number of cells (31), which each has a longitudinal axis (x) and is arranged to receive one of said fuel rods (5) in such a way that the fuel rod extends in parallel to the longitudinal axis (x), and
each cell (31) is formed by a sleeve-like member (32),
characterised in that substantially each sleeve-like member (32) is manufactured in a sheet-shaped materiel (60) that is bent to the sleeve-like shape.